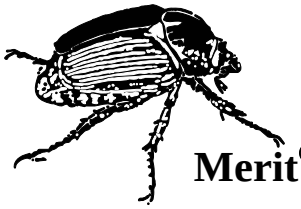

Program to Eradicate Japanese Beetle In Utah

Merit®: A Larval Insecticide – Questions and Answers

What is Merit®?
Merit® is the trade name for an insecticide called imidacloprid. It is used to control a variety of insects on agricultural commodities (grains, fruits, vegetables), turf, seed, and as a soil treatment.

Why is Merit® being applied?
The Japanese beetle (*Popillia japonica*) has been detected in this area. Merit® is being used as part of the Japanese beetle eradication program. The beetle is a highly destructive insect pest that was first found in the United States in New Jersey in 1916. Japanese beetle is present in most states east of the Mississippi, and several of the prairie states. The adult beetles feed on the flowers, fruit and foliage of over 300 plant species causing extensive damage to nurseries, seedbeds, orchards, and food crops. The grubs (beetle larvae) feed on roots of turfgrass and other plants causing damage to parks, golf courses, cemeteries, businesses and homes. Plant damage and replacement, Japanese beetle control, and quarantines can be costly to business and government. The Japanese beetle can also be a problem for homeowners. It can damage lawns, gardens, fruit trees and ornamental trees and shrubs. Many areas of Utah are suitable for Japanese beetle survival and reproduction.

How will Merit® be applied?
The Merit® used in the Japanese beetle eradication program will be a granular formulation containing 0.5% imidacloprid. The granules must be watered into the soil after application. Merit controls grubs on contact. Merit® is also systemic; it will penetrate the roots and move from the stem to the tips of the plant. The Merit® will be applied by ground equipment operated by a licensed commercial pesticide applicator under the direct supervision of the Utah Department of Agriculture and Food. The product will be applied to as much of turf and soil areas that can contain Japanese beetle grub as possible.

How often will Merit® be applied?
Imidacloprid breaks down slowly in the environment, with half of the chemical degraded every 48-190 days. Breakdown is much faster in soils with plant ground cover. There will be one application in mid to late June 2007 to kill young grubs while they are still susceptible.

Will Merit® injure the foliage of plants?
Merit® has been used on a wide variety of agricultural crops, lawns, gardens, and ornamental plants without damaging the plants.

Is Merit® harmful to humans or their pets?
Researchers use animal studies to characterize the potential for a pesticide to cause harmful effects to human health. It is important to know that these tests are carried out with very high doses so that toxicity (poisoning) can be observed. Effects seen at toxic doses in animals are unlikely to occur after short-term, low-level exposure in humans. The level of exposure must be considered to estimate the risk of harmful effects.

Based on laboratory studies, imidacloprid is classified as moderately toxic to mammals on a short-term (acute) basis. Imidacloprid is rapidly metabolized and excreted from the body. A single dose will be almost entirely eliminated within 48 hours.

Laboratory studies with rats fed high doses of technical grade (95%) imidacloprid over several generations did result in decreased body weight in the offspring. High doses of imidacloprid fed to rats and rabbits during pregnancy resulted in skeletal defects and reduced body weights in the offspring.

There is no evidence of cancer in laboratory studies with rats. This is further supported with evidence of non-carcinogenicity in humans.

When applied according to the label instructions, the available toxicology information indicates that application of imidacloprid (the active ingredient in Merit®) should not pose a risk to human health or to pets. The granular formulation and application methods used in the Japanese beetle eradication program, combined with the precautions given below, will result in few chances for people or pets to be exposed.

How can I avoid exposure to Merit® during the Japanese beetle eradication program?
Application to each residence should take less than half an hour. To limit exposure, remain indoors during the application and keep your pets indoors. You and your pets may freely use your yard when the application has been watered into the soil. The following precautions are recommended to minimize your exposure:

- Move lawn furniture, children's and pet's toys indoors before the application. If this is not possible, wash all surfaces with soap and water after the application. Wear chemically resistant gloves (nitrile) when washing these items.
- Keep family members and pets indoors during the application on your property or any neighboring properties
- The Merit® granules will be watered in after the application. Wait until the foliage and grass have dried before allowing family members and pets to use your yard.
- For additional protection:
  - You and your children can wear shoes if you will be walking across treated surfaces.
  - Wear non-permeable gloves (like nitrile) when working on the treated areas within 48 hours after the application.
  - Encourage careful hand washing.

Avoid contact with wet Merit® mixture on your skin and eyes. If contact is made, wash the affected skin thoroughly with soap and water. If the material should get into your eyes, flush your eyes with plenty of water and get medical attention if irritation persists.

Can I eat my garden vegetables after the Merit® application?
Merit® will not be applied to garden plants to be used for food or to the foliage or fruit of fruit trees. While some Merit® products can be applied directly to the foliage and fruit of fruit trees, the product being used is intended for turfgrass and landscape areas. Please help by telling us about any food-producing plants on your property.

Will Merit® cause harmful effects to other organisms or to the environment?
Imidacloprid is considered moderately toxic to mammals and to birds, but is not likely to affect these species when applied at the rates used in the Japanese beetle eradication program. Imidacloprid is highly toxic to many beneficial insects including honeybees. However, the areas to be treated are small and any possible harm to beneficial insects by the program will be very localized. Imidacloprid is moderately low in toxicity to fish but may be very toxic to aquatic insects. For that reason, application is prohibited over water; there will be no application to water in this program. Imidacloprid moves into and throughout plants. It is moderately soluble in water and moderately mobile in soil, but when used at rates in the Japanese beetle eradication program, groundwater contamination is not expected. However, irrigation practices will be monitored to ensure that there is no surface runoff and precautions will be taken to assure that there is no movement into surface water.

For Further Information:
Contact the National Pesticide Information Center (NPIC), 1-800-858-7378, http://npic.orst.edu, npic@ace.orst.edu. NPIC is a toll-free information service sponsored cooperatively by Oregon State University and the U.S. Environmental Protection Agency. NPIC provides objective, science-based information about a wide variety of pesticide-related subjects including the pesticide Merit®, potential health effects, pesticide poisonings, toxicology, and environmental chemistry.

Continuing Health Concerns?
Contact your physician (or veterinarian for your pets) if you have health-related questions or concerns. Health effects are not expected to occur among residents. However, if a resident feels an adverse health effect has occurred because of this program, please contact your physician the same day to establish whether it is related to the Merit® application. Your physician may consult with Scott Everett - (801)536-4117, severett@utah.gov, a toxicologist with the Utah Department of Environmental Quality, who is familiar with imidacloprid and its effects, or Wayne Ball - (801)538-6297, wball@utah.gov, a Health Program Manager with the Utah Health Department, or the Utah Poison Center (1-800-222-1222) in the event of a medical emergency.

For more information about Japanese beetle and this eradication program, visit the Utah Department of Agriculture and Food's web site at http://ag.utah.gov/pressrel/JBInfoPage.html, the Orem City web site at http://orem.org/. If further information is needed contact Utah State Extension's Adrian Hinton at (801)851-8460 or adrianh@ext.usu.edu, or Utah Department of Agriculture and Food's Clint Burfitt at (801)538-4912 or cburfitt@utah.gov.